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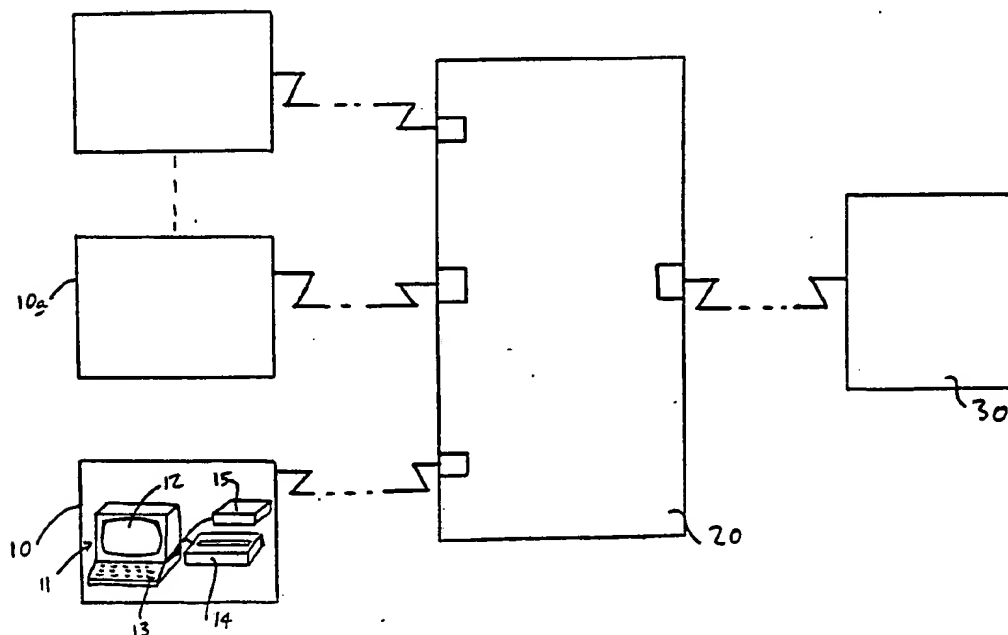
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(54) **Data bank updating system**

(57) A data bank update system comprises a plurality of remote computers 11 with respective data banks and respective communications modems 15, and a central administration centre 30 serving to communicate message to electronic mail boxes 20 for the respective remote computers which messages contain alterations for the respective data banks, each remote computer being arranged to retrieve any such message from its electronic mail box and automatically alter its data bank in accordance with the message.



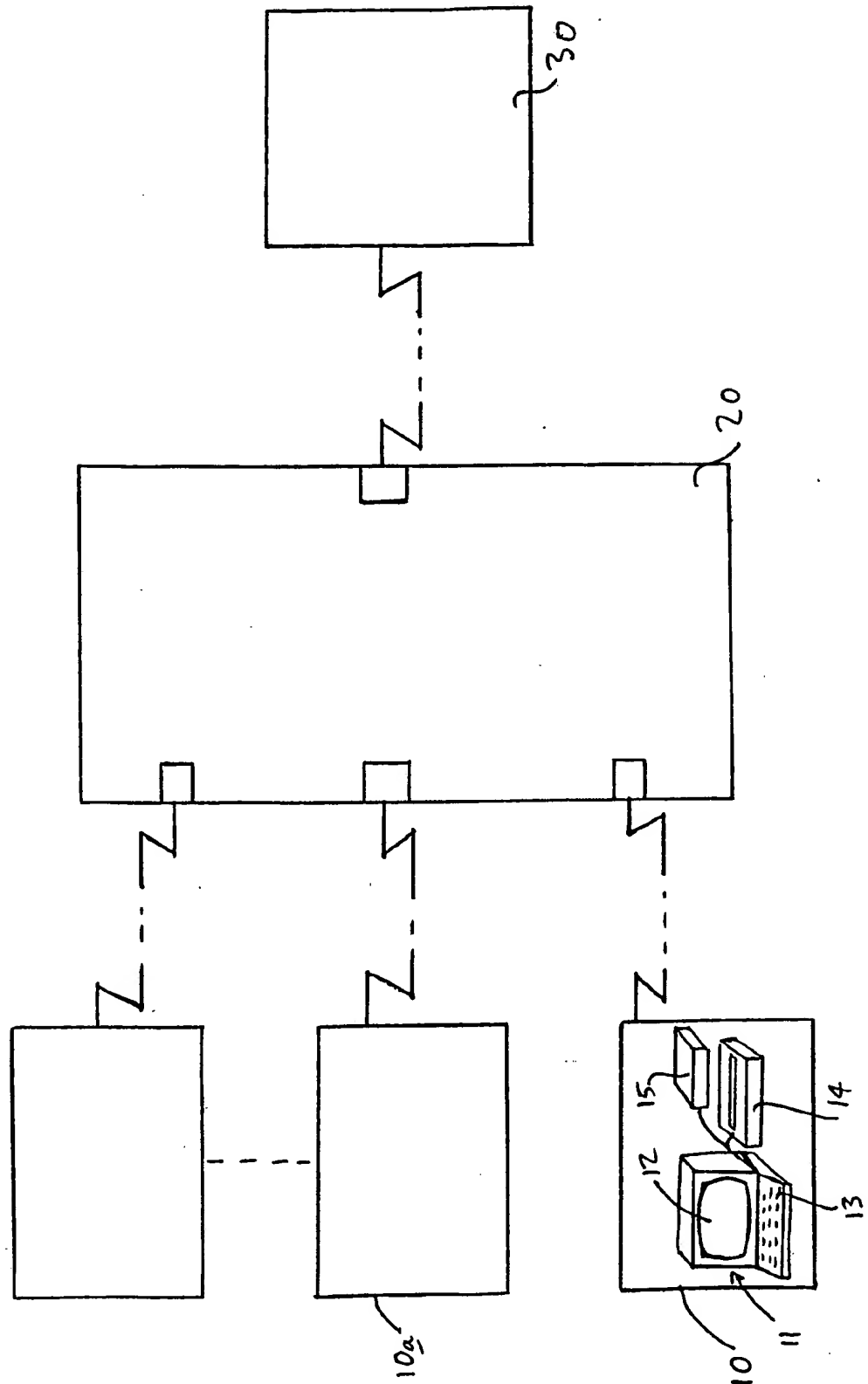
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DATA BANK UPDATE SYSTEM

The present invention relates to a data bank^{update} system.

It is known to provide a data bank of information at a central location and enable remote users to access this central data bank via their own terminal equipment. It is also known for individual users to hold a data bank of information on their own computers. We have now devised an improved system which provides for keeping the contents of each user's data bank up-to-date, using the store-and-forward facility of an electronic mail service.

In accordance with this invention, there is provided a data bank update system comprising a plurality of remote computers with respective data banks and respective communications modems, and a central administration centre serving to communicate messages to electronic mail boxes for the respective remote computers which messages contain alterations for the respective data banks, each remote computer being arranged to retrieve any said message from its electronic mail and automatically alter its data bank in accordance with said message.

Typically each remote computer may comprise a microcomputer with monitor and keyboard and any item of the data bank can be called to the monitor screen by actuation of the keyboard according to conventional principles. Any data-altering message, and likewise any other message intended for the user whether from the

selection of items

5 administration centre or another subscriber to the electronic mail service, is stored in the user's electronic mail box until the user calls in the usual way for any messages stored for him to be forwarded. Then the or each message is forwarded and messages containing updates to the data bank are acted upon automatically under the control program of the user's computer. Alternatively each remote computer may periodically call the electronic mail box automatically for forwarding of any stored messages and at such time update the data bank.

10 Each remote computer may also be arranged to generate messages for sending automatically via the modem to the electronic mail boxes of other subscribers to the service or to the telexes of other parties. For example the system may be used for buying goods or services and the messages may comprise purchase orders. As another example, the data bank may include a directory of suppliers of various goods or services and the remote computer may be programmed to generate automatically invitations to tender for the supply of goods or services. These invitations are transmitted automatically to the electronic mail boxes or telexes of the businesses selected to receive the invitations to tender.

25 Also in accordance with this invention there is provided a computer apparatus comprising a data bank store and a modem and arranged to call forward any message stored in an electronic mail box for said apparatus and automatically update said data bank in accordance with any alterations defined by the message which has been called forward.

30 An embodiment of this invention will now be described by way of example only and with reference to the accompanying drawing, the single figure of which is a schematic block diagram of a system in accordance with the invention.

35

Referring to the drawing, the system comprises (for each individual user 10, 10a) a microcomputer 11 having a monitor 12 and keyboard 13, a printer 14 and a modem 15. The system utilises electronic mail and a bank of electronic mail boxes is shown diagrammatically at 20. An administration centre for the system is shown at 30.

The microcomputer 11 of each user stores a data bank, (any item of which can be called to the monitor screen for information purposes by actuation of the keyboard 13 according to conventional principles.) The user cannot alter his data bank directly himself, but the data bank may be updated, changed, deleted or extended in the following manner. When any alteration of any user's data bank is to be made, an appropriate message is generated at the administration centre 30 and transmitted to the electronic mail box of the user or users concerned: this message includes the data alterations and the addresses in the user's data bank at which the alterations are to be made. The message is stored in the user's electronic mail box until the user calls in the usual way for any messages stored for him to be forwarded: then, the message containing data alterations is processed by user's microcomputer 11 to alter the data bank automatically. The forwarding of the message may occur when the user calls for it using his keyboard 13, or the microcomputer may be programmed to call for the forwarding of any messages automatically at predetermined times: any data-alteration messages are then processed automatically to update the data bank, and any other messages printed out or simply stored by the microcomputer for recall subsequently by the user.

Each microcomputer 11 may comprise a general-purpose microcomputer with the data bank held, for example together with the program controlling the updating of the data bank and other functions which will be described, on a disk or on a microchip.

selection
of the items

select

summarizing
the data
request
query

The system so far described thus provides that each user will have his data bank maintained up-to-date automatically by the administration centre, the user himself having no direct access to alter his own data bank.

5 The nature and contents of the data bank will depend upon the user's field of business or interest and this is known at the administration centre for each individual user. Apart from the functions described, each microcomputer may also be programmed to analyse and develop statistics representing the use which the user makes of his data bank. 10 These statistics show the relative frequencies at which the user refers to the different sections of his data bank. Periodically, the microcomputer transmits a message to the electronic mail box for the administration centre, 15 which message identifies the sender and also contains the statistics just described. The administration centre serves to determine from these statistics sections of the data bank that the user has particular interest in, and respond by altering the user's data bank accordingly, for 20 example extending the data relevant to that field of interest and possibly deleting sections of the data bank for which the user has shown infrequent or no need. In this way the system provides for a dynamic up-dating of each user's data bank.

25 Each user's data bank may be used purely as a store of information, any item of which may be called to the monitor screen, and/or printed out. In addition or instead, the data bank may be employed to generate messages for sending automatically via the modem to the electronic 30 mail boxes of other electronic mail subscribers or to the telexes of other parties. For example, the system may be configured for buying goods or services. In this case the data bank comprises a directory of businesses providing goods and services relevant to the field of interest of 35 the user. The microcomputer is programmed such that the

5 user may identify from the directory businesses providing selected goods or services and then automatically generates invitations to tender for supply of the goods or services: these invitations are transmitted automatically via the modem to the electronic mail boxes or telexes of the businesses which have been identified. These businesses are able subsequently to prepare their tenders and may communicate them to the electronic mail box of the user who invited the tenders.

10 The system may in similar manner be used for placing purchase orders direct with suppliers of goods or services. The user's data bank in this case comprises a directory of suppliers and may also include information on prices etc. This directory is kept up-to-date in the manner described
15 above and in addition the administration centre may send any additional messages or information for the attention of the individual users in a purchasing group. Preferably each user's microcomputer is programmed so that, upon communicating an order for goods or services to a supplier,
20 it also communicates a message to the electronic mail box for the administration centre: this message does not include all the information given in the order (which remains confidential between the sender and supplier), but identifies the sender, the supplier to whom the order has
25 been sent and possibly the size of the order or the items being ordered. In this way the administration centre is able to monitor the volume and distribution of business being conducted.

30 The system which has been described provides for efficient and automatic updating of a user's data bank. If this is a business directory used for inviting tenders to fulfil orders, then these invitations are generated and transmitted automatically, saving the time-consuming manual administration exercises of selecting suppliers, preparing
35 letters and mailing the invitations. If the system is used

for placing orders, it carries this out as quickly as making a telephone call but provides for a printed record and is quicker and cheaper than sending a written order.

- 5 The system may however be used for any situation in which users may benefit from having a data bank which is automatically updated.

CLAIMS

1. A data bank update system comprising a plurality of remote computers with respective data banks and respective communications modems, and a central administration centre serving to communicate messages to electronic mail boxes for the respective remote computers which messages contain alterations for the respective data banks, each remote computer being arranged to retrieve any said message from its electronic mail box and automatically alter its data bank in accordance with said message.
2. A data bank update system as claimed in claim 1, in which each remote computer comprises a microcomputer with monitor and keyboard and arranged so that any item of the respective data bank can be called to the monitor screen by actuation of the keyboard.
3. A data bank update system as claimed in claim 2, arranged for any data-altering message to remain stored in the respective electronic mail box until the user calls that mail box.
4. A data bank update system as claimed in claim 1 or 2, arranged for each remote computer to call the respective electronic mail box periodically to cause automatic forwarding of any stored messages.
5. A data bank update system as claimed in any preceding claim, in which each remote computer is arranged for generating messages for sending automatically via the respective modem to the electronic mail boxes of other users of the system.

6. A data bank update system substantially as herein described with reference to the accompanying drawings.

7. A computer apparatus comprising a data bank store and a modem and arranged to call forward any message stored in an electronic mail box for said apparatus and automatically update said data bank in accordance with any alterations defined by the message which has been called forward.

8. A computer apparatus as claimed in claim 7 and substantially as herein described with reference to the accompanying drawings.